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The "National" Meeting.

The National Veterinary Association held its Sixteenth Annual assembly at Leeds on Thursday and Friday.

The meeting commenced at 10 a.m. in the Council Chamber of the Leeds Town Hall, when sixty-five members were present. Mr. A. W. Mason, the president, was in the chair.

Vice-presidents and other officers having been elected, a deputation was introduced from the Leeds City Council, consisting of Alderman Lawson, Councillors Womersley, Scott, Bettison, and Appleton, and Mr. C. C. Joliffe (Deputy Town Clerk).

Alderman Lawson apologised for the absence of the Lord Mayor of Leeds (Alderman C. F. Tetley), who, he said, was an extremely busy man and bound to take his holiday when he could. He was unfortunately away at present, but he had charged him (Alderman Lawson) to welcome the Association in his name—(applause)—on behalf of the City of Leeds. "The object of the Association," continued Alderman Lawson, "is to promote science and advance knowledge, and we wish you well in your labours in Leeds." (Applause).

On the motion of the President the deputation were thanked for attending, and then withdrew.

The President and Professor Williams were elected delegates to a conference on public health to be held in Dublin.

After the usual business preliminaries—adoption of the report and balance sheet—the question of next year's meeting arose, and it was decided to accept an invitation sent by the Western Counties V.M.S. The Association will, therefore, meet in 1899 at Plymouth under the guidance of Mr. H. Bloye, the newly elected President.

The selection of Devonshire as the scene of next meeting was decided unanimously, but there was a strong feeling that the Association should hold a meeting in Ireland. The only obstacle to arranging for a meeting at Dublin is the small number of members of the Association in Ireland, and as all the preliminary work for a successful meeting must be done by a local committee, we should only invite failure by crossing the Channel before the local conditions were favourable.

We look forward to a meeting of the "National" in Ireland in 1900 as a fixture, and to the two existing Irish Veterinary Societies as the nucleus of a local committee which will ensure success.

The Leeds meeting was a distinct success. Both the papers considered the first day led to well sustained discussions, though, naturally, the horse's foot and its traumatic affections commanded most speakers.

EXPERIMENTS WITH NITRATE OF POTASH AS A POISON.

By S. M. Smith, Vet. Capt., A.V.D.

It having been published in a certain Indian government report that nitrate of potash was the cause of large mortalities in Indian cattle, I obtained permission to experiment on three bullocks, which were cast, and to be destroyed. The salt was said to exist in the stalks of a certain plant, used as fodder for cattle, to such an extent as to be sufficient to cause death.

The medicinal dose of the salt is generally considered to be from one to two ounces for cattle. I, therefore, gave eight ounces in solution to start with, once a day, which I soon increased to ten ounces, twice a day, finally giving twelve ounces three times a day, with apparently no ill effects on the bullocks. As this soon made away with my supply I dropped the experiment, concluding that the salt must exist in enormous quantities in the stalks, or that there must be some special condition of its existence in solution in the plant.

During ten years' residence in India I have never met with any such deaths due to the cause named, but the statement was made by a veterinary officer for whose opinion I have the greatest respect, and as I had some four hundred head of cattle under my charge, I was anxious to fix the amount likely to cause death, and to prevent, if possible, an outbreak in the government cattle under my charge.

Possibly some of our American colleagues can throw a light on this subject, as the same fatalities are said to occur there.

STUDENTS' DIFFICULTIES—(TWO VIEWS.)

Part I.—By "Senex."

These have doubtless existed from the first, and were even greater in the days of Professor St. Bel, than in those of Professor McFadyean. Different, if not greater, and the undergraduate of to-day when thinking to convince the oldster, by a long list of subjects, of the greater troubles of the modern student, may perhaps forget the improvement in the system of teaching, and the increased facilities for learning which the march of time has evolved.

Standing between the ways as one in middle life, the writer is in sympathy with present day students, while memory is fresh in regard to the difficulties of twenty years ago.

For our present purpose it is useless to refer to the one-sided teaching on the one animal—the horse—

which prevailed in the early part of the century when our grandfathers really learned anatomy and but little else. They had practically no literature, and their teachers, medical men exploring a new field, were more or less blind leaders of the blind. Yet it must be admitted that they groped their way towards the light, and indicated the direction in which a future generation should seek for explanations of the phenomena which so puzzled themselves.

There were a few earnest students then, as now—the old fellows we meet would have us to believe "there were giants in those days"—and that anatomy is a lost subject to us latter day practitioners. As we have advanced in sciences unknown to them even by name, we can afford to smile at these veterans.

Passing on to the time when the Emeritus professors living and practising to-day were filling (when not absent) the professional chairs at Camden Town, we come to the representative men of our time, men in the prime of life and occupying most of the prominent positions in civil, military, and private practice.

Among the students' difficulties met with at Camden Town (I only know the Scotch colleges by report) may he mentioned a total absence of organization and entire disregard of the student's welfare from the highest to the lowest of the teachers. Each professor was engaged in making money as a practitioner, and when his lecture hour came round, the students would be hanging about the doors of the theatre, not daring to go away for fear of getting a bad mark, and not informed of the teacher's absence until too late to make any better use of the time. Such was the shameful practice, not once or twice or occasionally, or confined to one delinquent; it was habitual, and these professors were netting big fees as witnesses or for attendance on private persons' or company's studs, while drawing good "screws" from the college and thus disregarding their obligations. A few sycophants, endowed with the world's goods could get all the advantages then existent, by boarding with a professor, for these gentlemen ran boarding houses as well as evening classes, which latter they didn't always attend although making sure of the fees in advance; such fortunate students were able to see the private practice conducted by the "coach," and from them the information used to leak out that there would be no lecture to-day as Professor Anvil, Chopper, Hannah Nyas, Tonsorius, or Hobbledehoy was gone to Newmarket, Hull, Halifax or somewhere else. We were none of us particularly grieved at missing their lectures, which were often very little value, but we resented the discourtesy, nay the contempt shown for their own appointments which we had to keep. This sort of thing in time worked its own cure; resignations were accepted and a new régime established.

The dissecting room had rules posted up but they were honoured only in the breach, and each student had to arrange to purchase a share of a "moke" as best he could. Fortunately for the less vulgar and pushing who could not secure the required number of subjects, it did not in the least matter how one acquired the necessary knowledge if on examination day one could reel off sufficient text book anatomy. Muscle throwing and scenes of disorder were of daily occurrence. Monitors were chosen and bore their badges with great bravery, but they were much too discreet to be in evidence when there was a row. There was less to be learned, but it was much more difficult to acquire, and many a good man failed because he couldn't hold all the subjects which had to be taken at two instead of four examinations.

One cannot leave the subject of students' difficulties in the past, without correcting a common error among our learned juniors who are apt to imagine that the microscope is an invention of the last few years, and that we did not know an eye piece from an object glass. On the contrary, we fretted at the large amount of time spent on histology when a student might pass his final without ever hearing many important subjects so much as named. A drop of water, an oil globule and a cotton fibre, would take up so much time that a whole session would be spent before we really reached the subject of histology.

There was no free practice or "clinique" as it is erroneously called, and only a favoured few saw the cases in hospital. There was a distinct advantage to those who did *not*, as they could learn from unqualified men how to treat quittor and some other diseases successfully, while such cases were poulticed at the college until the foot became a jelly and the knacker was requisitioned.

A student then might pass with "great credit" yet have no chance of appointment as hospital surgeon although the prospectus announced that from such a selection would be made. In the writer's year, he was the only one who passed in the highest order of merit, but a student who failed to pass at all was kept in the post until he did scramble through with just enough marks to get his diploma.

The student of to-day has no such favouritism to contend with, and the staff are earnest men devoted to the advancement of their profession and the best interests of the young men, destined before long to take, not our places, but better places in the public estimation.

Part II.—By "Junius."

By the courtesy of the Editor, I, "Junius," in the year of grace, 1898, have read what "Senex" has to say on the above subject, and now would I "give sorrow words," as one who has fallen at the last fence and postponed the glorious hope of attaching M.R.C.V.S. to my name, until, or perhaps after, these my complaints shall have been read by the sympathetic eyes of other young men who have taken off too short, or shied at an examiner with a bad reputation.

Some of the evils mentioned by "Senex" no longer exist, but each generation has its special difficulties, and not to prolong my remarks—like a short act of Parliament whose preamble is greater than its provision, I will plunge *in medias res*.

A four years' course, and four examinations in it, is quite enough for most fellows without a false start, but some students have justly to complain of the conditions upon which they enter the London College.

An educational certificate and not a properly or-

ganised matriculation examination is required, before commencing one's professional studies. Of this there is no need to complain; it keeps out uneducated blacksmiths of whom there are already too many in the ranks; it is the ambiguity that surrounds this certificate that causes so much trouble. Let me give a couple of examples.

A gentleman presented his educational certificate which was accepted by the authorities of the Royal Veterinary College, and he was permitted to pursue his studies for the first professional examination. It was then only discovered that the said certificate was insufficient one more language being required. (He had a Pentecostal gift of "language" when the mistake was announced).

In the case of the next man, a very earnest student who was working for the Centenary (twenty pounds) prize, the invalidity of of his educational certificate was only ascertained after passing two sessions, instead of one as in the former case quoted. Both of these gentlemen were stopped. The first threw up the profession in disgust, while the other, a Mohammedan, went to Edinburgh, and availing himself of more lenient rules, eventually passed with distinction.

This arises from the fact that the Royal College of Veterinary Surgeons and not the teaching school has to determine the validity of a certificate, but surely the student cannot be expected to know these details, and an "affiliated" college should see to it that entry certificate are in due form, otherwise the term affiliation has for him only a newspaper meaning, and is a thing to be avoided.

Intending students who may happen to read these notes may be told that at the first or class "A" examination the subjects are:—chemistry, botany, osteology, and zoology. Of these, the freshman is expected to gain a fairly wide and somewhat deep knowledge in one year, part of which is supposed to be a holiday? Each examiner, with a natural tendency to magnify his office, deems his particular subject so essential, that, though the student may possibly be weak in other departments, he at least cannot pass a man who is not well up, say, for instance, in the anatomy of human tonsils, which have no analogue in animals. This remark of course applies to all the examinations, even to the final practical, although a very young man cannot possibly have had much experience of practice. The student, and indeed the general practitioner, who does not know the tortuosity of veterinary politics, often wonders on what principle of selection examiners are appointed. Is it for distinguished party services, or is fitness and a sense of justice ever considered?

In the course of some half dozen examinations I have learned to divide examiners into two principal classes: (*a*) those who wish to ascertain what a candidate knows, and (*b*) those who desire to find out what he does *not* know.

As the space at my disposal is limited, any further sub-division is not permissible, but I would call attention to one type of examiner, if not indicating an individual, who has a most delightful manner, positively caressing in the tone of his voice, but though he purrs as it were with pleasure at meeting so promising a candidate, his manner is not so false as my words may seem to imply, for a feline pleasure in torturing his victims is the mainspring of his joy.

He has a catch question the examinee cannot answer, and he plays with the subject during the whole time alloted instead of passing on to ascertain what the candidate *does* know. Of course the result is foreseen, and a worse "show" made at the other tables.

Again, I have known a student rejected through the attentions of one of the professors from his *Alma Mater*, who was there "to see fair play," and not to influence in either direction the judicial capacity of the examiner; yet a professor of botany has been known to advise an end of the questions, in view of the candidate's lack of knowledge. This surely is not fair play. Has not the botany professor himself held monthly examinations, and permitted only those who are in his opinion fit to present themselves for the more serious ordeal in Red Lion Square?

While cultivating a respect for authority myself, I cannot avoid hearing uncomplimentary remarks as to dual offices and divided interests. We know of course that disappointed exhibitors and "ploughed" students are apt to disagree with the finding of judges, but does it not strike the reader as a curious state of things that both professors and examiners are pecuniarily interested in the rejection of students? Personally of course, they are above suspicion, but in the interests of his college the teacher desires on the one hand to obtain credit for the number of "passes," and on the other, the "more days more dollars" for the school to which the rejected one returns. Another much needed twenty pounds has to be paid to the college for a whole session although the student may get through at the half term, and not avail himself of the five-eighths of the year for which he has had to pay. The position of the professor reminds me of Pooh Bah, who, before he could answer a question requested to know in which of his capacities he was expected to reply. He has got to live by the fees of the veterinary milch cow, *i.e.*, the student, and the supply is short (see the Duke of Cambridge's remarks at the annual meeting). Unlike the lessee of a theatre, who fills up his stalls with what he calls "dead-heads," the veterinary teacher avoids having empty benches by taking gate money a second time for a repetition of the same dreary performance, although a large proportion of the audience find no temptation to rapturous applause when the time-honoured joke, trotted out to generations of students, is once more repeated with a well simulated air of novelty.

Despite all the students' fees, and the shoeing business, (carried on at a price to compete with practitioners) the charge of twenty-eight shillings a week for a hack and the retention of simple cases in the infirmary, the business doesn't pay.

But I have got ahead of my subject, and will return to class B—anatomy, physiology, stable management and shoeing. A collegiate year of eight months is not too long in which to gain a smattering of these important subjects, but the examiner looks for as much knowledge as if eight years had been devoted to it. He has had not less than eighteen in which to perfect himself and should be able to find plenty of honest 'floorers' without putting catch questions.

Class "C" examination has next to be faced, and the subjects are so arranged as to take one back again over some of the old ground. Stable management in class "B" cannot be treated except in connection with hygiene, yet hygiene is made a special subject in the "C" examination in addition to pathology, morbid anatomy, materia medica and pharmacy, therapeutics and toxicology.

Class "D."—A frequent complaint of students in this section is what they deem the unreasonable attitude taken up by examiners in expecting of students an *intimate* and *practical* knowledge of diseases, such as cattle-plague, that have not existed in England during the lifetime of the examinee. It is only by rare fortune that a student can now see a case of pleuro-pneumonia (contagiosa) or foot-and-mouth disease, yet it is a favorite theme with examiners in the final practical, when so many good men get a fall. Some of them ride for it, so that they may go for a period of pupilage with some notable man whose name is in good odour with the authorities before presenting themselves again. Medicine and surgery are also subjects of examination at the final test. Perhaps the rejected student has no right to complain of a five pound fee for each examination and a reduced one of three pounds for re-examination every time he fails, but when these sums are added to the school fees, the cry of the parent or guardian is occasionally heard, although to the professional ear it is of no great consequence. Still it is the students' fees that keep the Royal Veterinary College out of bankruptcy and pay the working expenses of the Royal College of Veterinary Surgeons, and if "he who pays the piper has a right to call the tune" then students' difficulties should meet with full and fair consideration, and not that official hauteur which is too often displayed when injustice or errors of judgment call for remark on the part of candidates for the diploma.

VETERINARY SOCIETIES.

THE BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

The summer meeting was held on Friday, July 29th, at the Derwentwater Hotel, Portinscale, Keswick.

The venerable President, Mr. Joseph Carlisle, M.R.C.V.S., Carlisle, presided, with the following gentlemen present: Messrs. F. W. Garnett, Windermere; John Steel, Wigton; John Armstrong, Penrith; Joseph Pears, Penrith; Jacob Howe, Keswick; Joseph Hewson, Carlisle; James Lindsay, Dumfries; Professor Davis, Edinburgh; Hy. Thompson, Aspatria. Hon. Secretary and Treasurer; and as a visitor, Mr. J. Smith Hill, Principal of the Agricultural College, Aspatria.

The SECRETARY read the notice convening the meeting, after which the minutes of the previous meeting, also those of a special one, were, on the motion of Mr. Armstrong, seconded by Mr. Hewson, taken as read and signed by the Chairman.

Mr. ROBINSON, M.R.C.V.S., Dairy Inspector, Carlisle, and Mr. Caldwell, M.R.C.V.S., Brampton, were unanimously elected members of the Society.

Mr. THOMPSON, Aspatria, nominated Mr. Joseph Lyons, M.R.C.V.S., Aspatria; and Mr. John Armstrong, Penrith, nominated Mr. Arthur Gibson, M.R.C.V.S., Penrith, as members of the Society.

Mr. THOMPSON exhibited two forms of india-rubber teat syphons for the irrigation of the mammary glands, after Schmidt's mode of treatment for milk fever, and from the trials he had made he thought great benefit would be derived by injecting the mammary gland. He had held the idea for a quarter of a century that the cause of parturient apoplexy in the cow commenced in the udder, and was due to the sudden removal of the pressure by the withdrawal of all the milk at once immediately the cow calved, causing paralysis of the milk cells, and a retention of the elements or materials which entered into the composition of the colostrum, and should be eliminated from the body by the action of the mammary gland, but which, by the collapse of that organ were retained and thrown back on the system, producing a toxic effect upon the animal. He was pleased to note that this view had been embraced by several other members of the profession. In January, 1877, he wrote his first article on the subject, which appeared in an agricultural paper, *The Practical Farmer*, published in Dublin by Messrs. Goulding & Co., Ltd. He was now trying Schmidt's treatment. He dissolved two drachms iodide of potass. in one quart of warm water and injected half-a-pint into each teat; the effect was astonishing and soon apparent, and from the reports that have appeared in *The Veterinary Record*, he thought the treatment would be generally acted upon.

Mr. JNO. ARMSTRONG exhibited a specimen of a fractured os suffraginis which, to which, to use a common term, was broken all to pieces.

Professor DAVIS, by the aid of five microscopes, showed a large number of microscopic sections of both healthy and morbid structures of various parts of the body; and he explained the particulars of each section as they were exhibited. The room was then darkened and the Professor gave a limelight exhibition of the various micro-organisms. Among them were streptococci in the omentum, streptococci in the fibrinous exudate on the serous surface of the bowel, both from peritonitis after castration; anthrax in the lung of the ox; tubercle bacilli in the lung of the horse from a case of acute pulmonary tuberculosis, an account of which from the pen of the Secretary appears in *The Veterinary Journal* for July; also tubercle bacilli in the kidney of the cat and lung of the ox; actinomycosis, glanders, tetanus, black-quarter, etc.

Prof. DAVIS then opened the discussion on the President's paper read at the last meeting.

Mr. President and gentlemen,—I willingly accepted the invitation of your energetic and kindly Secretary to attend this meeting and take part in the discussion of the excellent paper read by your venerable President, because in the first place I was glad of an opportunity of re-visiting this lovely country side, this paradise of honeymooners and of wandering among these dales,

> By the hanging mountains,
> And by the falling fountains.

Another reason lay in the fact that a great part of the venerable president's interesting paper was taken up with a consideration of the past and present way of regarding contagious diseases; practically, too, the whole of the discussion that followed centred round this subject, and in the paper and in the discussion I detected a lack of fervour in the belief in germs, and I thought that an interesting hour might be spent if those strong for germs were reinforced a little. You know that some good christians go to church and say their *credo*, give a quiet acquiescence, but don't act as if their belief was in a certainty—are not ready to fight for it like the fine old christians of other days who

> Proved their doctrine orthodox
> By apostolic blows and knocks.

In the same way many of us give a smiling assent to the statements about the potency of germs as disease producers, but in every-day work leave them out of consideration.

I remember a question being asked at one of the written examinations, it was, "What are the causes of mammitis." When the men returned from the examination room and showed me the questions I asked a group of them how they had answered that question. They gave me as causes, over-stocking, over-feeding, lying on cold stones, and many more conditions that are accused of producing mammitis, but when I asked if no one had mentioned *germs*, they smiled and said, "No, they had not thought of germs." They probably had left out the principal cause.

We mean by an infectious disease a pathological condition brought about by the action of minute living organisms which have gained access to the body. Some of these infectious agents are capable of leaving the patient and entering the body of healthy animals and setting up the same disease in them. When the organism has this power the disease is called a contagious one. So that while all infectious diseases are produced by germs, contagious diseases are a class of infectious diseases in which the germ is so virulent that it can spread to neighbouring healthy animals and infect them. Peritonitis is an example of an infectious disease, and anthrax an example of the division of infectious diseases which are called contagious diseases. Ordinary pneumonia is infectious, pleuro-pneumonia is contagious.

The notion that low forms of organisms could invade the body and set up disease is by no means new. As far far back as the time of the Roman writers the suggestion was made that malaria was due to a living contagium. But it was only after the invention of the microscope, and the discovery of the infusoria that may be seen darting across the field when a drop of certain waters is placed under the objective, that the theory received corroboration and was more widely applied. The bacillus of anthrax was seen fifty years ago, but as this, like all other pathogenic germs, is found associated with many others it was only after the introduction of proper methods of sterilization and cultivation (solid culture media and plate culture) that it was possible to separate it from others, get it in pure culture outside the body, and produce anthrax by inoculation of the pure culture. Koch said that before a disease could be acknowledged to be due to a specific germ, that germ must always be found in the patient—it must be isolated and obtained in pure culture outside the body, and this pure culture must in turn produce the same disease. These requirements have been fulfilled in the case of a number of infectious diseases, of these anthrax and tuberculosis are examples.

Let us take a few examples of diseased conditions that one frequently meets with in practice that owe their causation to germs. I have given peritonitis as an example of an infectious disease, it is frequently seen after castration, and used to be put down to the animal having caught a chill. I show you here a section of the enormously thickened omentum of a colt that died six days after castration. The section has been stained by Gram's method, and you will observe that it contains myriads of thin curved bodies, stained blue. In some places they are in depots, and one can see nothing but germs—not a leucocyte, &c., or a bit of fibrin or any other structure. They appear, in fact, to be in pure culture. I also show you a section of bowel from another case of fatal peritonitis following castration; and here the organisms are confined to the thickened serous membrane. I can tell you the history of this case. Two colts were castrated by a practitioner on the same morning, and both died from peritonitis a few days afterwards, and this is a section of the bowel of one of them. I cannot tell what antiseptic precautions were observed; they were, however, evidently inefficient. I don't know whether you have read the Collins' case, Sir John Williams was the principal medical expert for the prosecution, and in his cross examination he stated that, in his opinion, peritonitis was never due to chill or to any other cause than germs.

Synovitis and Arthritis. One may make, under proper antiseptic conditions, a puncture of a thoro'pin or an enlarged tendon sheath and get no trace of inflammation, but what often follows a wound of these structures by a contaminated instrument? I remember being called to a beautiful cart mare, the property of a poor man. His boy in doing up the bed in the morning had accidentally wounded the carpal sheath with a fork. What was the result here? Family doctoring, fomentations, and rubbing oils for some days, and then a message for me. The mare died from septic absorption, and there was found post-mortem necrosis of the tendons passing at the back of the knee.

Septic Pleurisy. Paracentesis thoracis is often enough performed with no bad results—if commonly with no particularly good ones, but I saw a horse die from septic pleurisy caused, like the case related above, by a small puncture with a pitchfork. Why should one get an intense inflammatory process when these serous membranes are punctured by a pitchfork, and little or no disturbance when a clean instrument is used? The explanation is that germs are introduced by one and not by the other.

Lymphangitis. I expect to bring a hornet's nest about my ears when I ask if it is possible that ordinary lymphangitis is due to germs. A lymphangitis is quite commonly seen spreading from wounds—a traumatic lymphangitis—and it often ends by necrosis of pieces of skin and by abscess formation, which are undoubtedly due to germs.

Can a localised lymphangitis ever develop into one of the sort called Monday morning disease? I think it can.

A short time ago I saw a mare lame in the near hind leg. She had marks of buffing on the fetlock, and was sore there. Ordinary cooling applications were used. Thirty-six hours afterwards she developed an old-fashioned "weed," which yielded to ordinary treatment; an abscess formed at the fetlock, however. What sort of animals does one commonly get weed in? Often they are horses with itchy legs. What is easier than for a horse rubbing one hind leg with the quarter of the opposite foot to inflict an imperceptible wound from the clinches which may be enough to inoculate the limb?

Metroperitonitis, seen often in the cow and mare, and especially frequent in the sheep after parturition, is always due to infection, and is sometimes epizootic.

Mammitis is also a germ disease. I have produced it in a heifer by introducing a dirty syphon to remove a supposed obstruction in the teat.

All the pathological conditions about which I have spoken are probably due to the pus-forming organisms, staphylococcus and streptococcus, which I have shown you on the screen and under the microscope. Of the contagious diseases which have been proved to be due to a specific organism by (1) the constant presence of the specific germ; (2) its cultivation in a state of purity; (3) the production of the same disease by the inoculation of this pure culture; I can merely mention anthrax, actinomycosis, black quarter, glanders, swine fever, tetanus, tuberculosis, but I must say something about the last disease.

Of all contagious diseases tubercle is the one about the etiology of which we ought to have least doubt. What proof have we that the disease is due to a living contagion? It is needless to recall the innumerable experiments that from Villemin's time to ours have placed it beyond a shadow of doubt that by ingestion, inhalation, intravenous, intrapentoneal and subcutaneous in-

jection, with material from a tubercular lesion, the disease may infallibly be transmitted from man to animals, and from one animal to another.

Apart from the experimental production of the disease by tubercle material, are there any facts in our every day experience of tuberculosis that lend support to the view that it is a contagious disease? An old farmer, a very observant man, told me a good many years ago that he thought consumption in cattle was catching. He said that he had often noticed that if two cattle were tied up to fatten, if one was consumptive it almost certainly affected its neighbour. And I have repeatedly seen instances of this myself. A remarkable case came within my own knowledge in the human subject. A healthy girl, none of whose family were known to be tuberculous, married a consumptive man, who died two years after their marriage. The widow married a second time, and I knew her second husband well, and knew him to be a wonderfully active, healthy fellow. Within three years both were dead of phthisis. It is difficult to explain these facts on any other supposition than that the first husband infected the wife, and she infected the second husband.

Nocard's case seems to prove the ability of milk from a tubercular udder to give abdominal tubercle to human beings. Here a young girl, the daughter of a doctor, used frequently to drink fresh milk at her father's farm, and she having died of abdominal tuberculosis, three cows were found on examination to have tuberculosis of the udder. That the disease is contagious is in fact beyond cavil.

But beside this the bacillus which you can see in these preparations can be readily separated from any others that may be associated with it and may be obtained in a condition of purity. A trace of this pure culture placed in the subcutaneous tissue of a guinea pig will, in the course of a few weeks, cause the death of the animal, and a post-mortem shows that death has been due to abdominal tuberculosis.

I saw in the pathological museums formed for the British Medical Associations meeting in Edinburgh, some beautiful dissections of guinea pigs so treated, and sent by Dr. Woodhead. The spleen was completely studded over with tubercles. Intavenous injection of this pure culture overcomes even the great natural immunity possessed by the sheep, and it dies of generalised tubercle. Surely then we have proof that tuberculosis is a contagious disease, and that its cause is the tubercle bacillus.

Mr. Thompson stated that in some cases of tuberculosis no bacilli are found. That is quite true, but even then inoculation of guinea pigs with material from the lesion will set up the disease, and the bacilli will then be obtained readily enough. He also stated that tuberculosis might arise from inflammation. Well, inflammation is a term of very wide significance indeed. Most diseases have at one time or another been set down to inflammation. Besides you must remember that many germs are themselves capable of giving rise to all the phenomena of inflammation. Shakespeare uses the term inflammation. Falstaff in describing teetotalers says that they are mostly fools and cowards, as many of us might be also (he adds) but for *inflammation*. If this is the sort of inflammation Mr. Thompson alludes to he is also wrong, for Prof. Hamilton says that big beer drinkers never take tubercle.

With regard to the part heredity plays in the etiology of tubercle I would like to say that I think a scientific society like this incurs a grave responsibility if it emits the doctrine that tubercle is spread to any extent by heredity; because it will tend to slacken the efforts of those who have the disease among their animals and who are endeavouring by isolation and by other means to prevent its spread by contagion. If you persuade people that tuberculosis is hereditary you manifestly destroy the hope of rearing the offspring of tuberculous parents, and this in my opinion you are in no way justified in doing. (Great applause).

The PRESIDENT then invited discussion, saying he personally thanked Prof. Davis for his kindness in coming so far and giving such a splendid demonstration. He himself had enjoyed it very much, but was very sorry indeed to see so few of the members present, he could not understand why they took so little interest in the most important matter relating to the profession.

Respecting the Professor's remarks on tuberculosis he, the speaker, being one of the old school, and from long observation he still held that consumption or tuberculosis had a great deal of hereditary tendency about it. He must admit that he was a little bit astonished to hear Professor Davis say that *weed*—lymphangitis—was due to micro-organisms. It might be so, but could the professor say in what way mud fever was associated with *weed*. He would ask Mr. Garnett to make a few remarks on the Professor's address.

Mr. GARNETT said we had heard one side of the question and he knew there were parties present that held somewhat different views, he would like to hear some remarks on the other side, and with the President's kind permission he would ask Mr. Thompson to speak on the subjects.

Mr. THOMPSON: Now, gentlemen, you all know my views on the matter of germic or specific diseases; that is I hold that there are two conditions necessary. First we must have suitable soil for the favourable acceptance, development and growth of the germ, and this I look upon as the most important part; that the tissues of the body are by some means or other—hereditary if you like—rendered prone to favour the invasion and development of the germ, and I am pleased to note that I am not alone on this point, as it had been frequently alleged, but the following extract from the July number of *The Public Health Journal* will prove the contrary. In a contribution by Dr. K. F. Andivord on the Etiology of Tuberculosis, he says, "The phthisis mortality, therefore, varying so little from year to year in different districts can hardly be attributed solely to infection, but must be greatly dependent upon something *locally invariable*. And this, in the author's opinion, must be the soil to which the bacilli gain access. This is the inherited or acquired power of resistance which is present in varying degrees, not only in the populations of different places but also in different families and in different members of a family. This tendency to phthisis, then, seems to be the result of hereditary influences on the one side, and the conditions of life, hygiene, and climate on the other." This to him was very satisfactory. As for the germs or bacilli, immediately a microscopist discovered the rods or spores cried out, "Oh, it is a germic disease, I have found the bacillus," and seems quite content, but the germ or seed was only one condition, the seed-bed and surroundings were of more importance, which was well exemplified in the agricultural world, this year in particular, although clover and turnip seeds had been sown in large areas, in numerous instances they had failed to germinate and grow because the soil was not resplendent with every necessary. The same, in his opinion, held good in all germic diseases. To those gentlemen who did not believe in the hereditary nature of tuberculosis he would put the following questions. How does it happen that tuberculosis follows in the wake of certain strains of animals from one generation to another? Also how does it occur in certain families of the human subject generation after generation and without contaminating other persons who live and sleep in the same rooms? In answering these questions he would not accept the words predisposed or predisposition, they were only other words for hereditary.

Respecting the young lady named by Nocard and alluded to by Professor Davis, this had been dragged

to the front over and over again. It is strange that so much should be made of this case, and stranger still that this poor young lady was the only one recorded that drank of the milk of two tubercular cows; this case in his opinion wanted more conformation. But if the bacilli were so dangerous by all means let us use every endeavour to get rid of them.

With reference to anthrax, Prof. Davis was very strong on the bacilli being the cause, but he, the speaker, held that anthrax although scheduled under the Contagious Diseases Animals Act, was neither contageous nor infectious but very inoculative, what he meant was that anthrax did not spread from one animal to another by cohabitation or inhalation, it might by ingestion, but that was only another form of inoculation, and he was satisfied in his own mind, from long observation, that the body of the cow could by a peculiarity of mixed foods be rendered prone to take on anthrax. Whether the spores of the bacilli found a suitable bed in the prepared food and conveyed to the body of the animal ready to accept them he could not say, but that the food had something to do with the malady he was confident. A change in the diet as a rule stopped the progress of the disease, again if it was all due to the bacilli we would have more cases. Taking the statistics into consideration the cases did not average above two in a so-called outbreak.

Respecting mammitis, he would leave that over, as he was down to open up a discussion on the subject at the National Meeting at Leeds, on the 12th of August.

With regard to lymphangitis there must be more kinds than one; he had seen it in both fore and hind legs without discovering any wounds, and his mode of treating foal mares in particular was, calomel ℥j, spt. aeth. nit. ℥jss. ol. lini. Oj. and fixing up the limb in a cold water hay bandage (Syme) and pouring cold water down the syme every 4 or 6 hours. He had seen very bad results arising from giving a dose of physic, setting up superpurgation and metastic inflammation, shifting of the disease from the limb to the large intestines. He was very pleased to see Prof. Davis amongst them but very sorry that there was such a poor attendance, he could not understand it at all. He believed if the meetings were held in some of the members' homes, they would find some excuse to be absent.

Mr. STEEL thanked Prof. Davis for his microscopical and lime light demonstration of the pathogenic organisms, he had been very much interested in the Professor's address. Referring to anthrax, a few years ago he had some cases on a farm in his practice and he attributed the disease to some hay, which he then ordered to be discontinued and the progress of the disease was arrested. A few months after this a clearance sale was made on the farm when the party who bought the hay he had condemned carted it home, which on giving to his animals produced anthrax.

In reply to arguments as to heredity, Professor Davis said that in Norfolk and Cambridgeshire hundreds of milk calves are raised. They are brought from all parts of England, and as 30 per cent. of adult cattle are acknowledged to be tuberculous, many of these calves must have been the offspring of affected animals, yet tubercle is almost unknown in these parts. Why is this? It is because the cattle are never housed. Even milking cattle and fattening bullocks are kept in open courts or in the fields, and if one should happen to be affected, it gets little chance of spreading the disease to its neighbours. Here, then, heredity fails to spread the disease, the chances of contagion being eliminated. The venerable President's statement that weed often followed mud fever and cracked heels gave quite an unlooked-for support to his statement that lymphangitis might be a germ disease.

With regard to anthrax there was nothing more certain in this world than that the bacillus anthracis or its spore was the only cause of the disease, and it was a confusion of terms to call it anything but an infectious disease.

At the close of Professor Davis's reply, a hearty vote of thanks was, on the motion of Mr. Armstrong, seconded by Mr. Hewson, accorded him, and was carried by acclammation; after which Professor Davis was unanimously elected an honorary member of the Society.

Professor Davis returned thanks for the great honour they had conferred upon him by electing him an honorary member, and thanked them sincerely for the courtesy that had been extended to him, and the kind manner in which his address had been received. It had been a great pleasure to him to come amongst the members at such a lovely place as the Derwentwater Hotel, not only that, but to be under the presidency of such a venerable Chairman as Mr. Carlisle. He could not sit down without proposing a hearty vote of thanks to him for his duties as Chairman.

This was seconded by Mr. J. Pears, and carried with enthusiasm.

The Chairman thanked them all for their kindness towards him, and said he was sorry to say that neither his eye nor his ear was as bright as once they were.

The members then sat down to an excellent dinner, prepared by Mrs. Harker, after which a pleasant hour was spent in song and toast, the health of the President being drank with musical honour. In reply, Mr. Carlisle proposed the health of the visitor, Mr. J. Smith-Hill, Principal of the Agricultural College, Aspatria, who he was pleased to see amongst them. He considered agricultural colleges were in a great measure linked with those of the veterinary profession.

Mr. Hill suitably replied, and said he had been very much interested in the microscopical and lime-light demonstrations so ably given by Professor Davis, and hoped it would not be the last time he would be amongst them.

At the request of the President, Mr. Thompson sang "Poor Old Joe," the meeting breaking up with "Auld Lang Syne."

VICTORIA VETERINARY BENEVOLENT FUND.

Dear Sir,

I shall be obliged if you will kindly insert in the next issue of *The Veterinary Record* the enclosed list of the names of members who have remitted donations or subscriptions to me since the 4th of July last. Several gentlemen have been good enough in answer to my last circular to promise to subscribe, may I ask them to kindly give effect to their wishes in order that postage expenses may be kept as low as possible?

I have pleasure in stating that the amount of the fund to date is £670 17s. 6d.

46 Lewisham High Road,
New Cross, S.E.
10th August, 1898.

W. F. BARRETT,
Hon. Sec. & Treas.

Amount of donations and subscriptions previously acknowledged £626 13s.

	Donations.	Life Membership.	Subscriptions.
	£ s. d.	£ s. d.	£ s. d.
Wood, J. S., A.V.D.	0 10 6	—	0 10 6
Burke, R. W. Capt.	1 0 0	—	—
Hinde, T. W. W.	—	—	0 10 6
Howard, P. S.,	—	—	0 10 6
Martin, E. E.	—	—	1 1 0
Young, S.	0 10 0	—	—
Lowe, G. C. & F. B.	—	—	2 2 0
Collyer, J. B.	0 10 6	—	—
Mellett & Son	—	—	1 1 0
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	Donations.			Life Membership.			Subscriptions.		
	£	s.	d.	£	s.	d.	£	s.	d.
Roberts, R.	1	1	0	—			—		
Hewson, J.		—		—			0	10	6
Lepper, T. W.	2	2	0	—			—		
Barling, W. C.	3	3	0	—			—		
Barker, T.	0	10	6	—			—		
Bovett, E. W.		—		—			1	1	0
Corby, T.		—		—			1	1	0
Wheatley, A.	1	1	0	—			—		
Gair, Geo.		—		—			0	10	6
Stone, M.	1	1	0	—			—		
Gregory, C. W.	2	2	0	—			—		
Dixon, W. G.	1	1	0	—			—		
McCall, Prof. J.	1	1	0	—			0	10	6
Charnock, D.	1	1	0	—			—		
Holmans, S. G.	1	1	0	—			—		
Jewell, J. F.	0	10	0	—			—		
Hewett, S. J.		—		—			0	10	6
Western, G.	1	1	0	—			1	1	0
Dudgeon, G. R.	1	1	0	—			1	1	0
Golding, W. W.		—		—			0	10	6
Beattie, P.	0	5	0	—			—		
Ellis, W.	1	1	0	—			—		
Whitney, T. W.		—		—			0	10	6
Dobbyn, A.		—		—			0	10	6
Barr, John		—		—			0	10	6
Williams, W. J.		—		—			0	10	6
Slipper, T.		—		—			0	10	0
Smith, Lieut., A.V.D.		—		—			0	10	6
Skues, F. M.	0	10	6	—			—		
Anderton, W. J.	1	1	0	—			—		
Paradise, H.	1	1	0	—			—		
Smithers, W.		—		—			1	1	0
Robinson, A.	0	10	6	—			—		
Over, A.	1	1	0	—			—		
Mayall, G.		—		—			0	10	6

Total £670 17s. 6d.

EXTRACTS AND NOTES.

THE TOXIC ORIGIN OF DISEASE.

Abstract of the Address in Medicine by THOMAS RICHARD FRASER, M.D., at the annual meeting of the British Medical Association at Edinburgh, July, 1898.

(Continued from page 81).

Immunity equally with poisoning is dependent upon a soluble substance produced by the micro-organisms. The duration of even a high degree of immunity resulting from the introduction into the body of the immunising substance as distinguished from the microbe is only of brief duration; and, accordingly, with the existing evidence, it is impossible to account for the prolonged immunity following upon the recovery from many infective diseases, or from inoculation with vaccine lymph, otherwise than by assuming that so long as immunity continues the microbian sources of infective disease continue to exist in an attenuated and otherwise modified form in the protected body.

Attenuation for the purposes of protection would therefore appear to be essentially a process in which the condition of life of the microbe is so altered that its capacity for manufacturing poisons is weakened or destroyed, while its disease-preventing properties are retained. Unless by education we can so tame and civilize a pathogenic microbe as to subdue its virulent and hostile disposition, while at the same time its beneficial and protective properties are left unimpaired, the hope of obtaining—as for plague, cholera, and tubercle—immunising vaccines equal in efficiency to the lymph of vaccinia will probably never be realised.

The theory which I have suggested implies that long-enduring protection from infective disease cannot be obtained by the introduction into the body of either the poisonous or the immunising products of microbes—the toxins or antitoxins—but only by inoculation of such microbes as are capable in the body of assuming a non-virulent form, or of microbes already converted into this form.

Passing now to consider the origin of the protection-producing substances—antitoxins or antivenins—it is important to bear in mind that the symptoms of a pathogenic disease, the toxic phenomena by which it is characterised, are, with a few doubtful exceptions, directly caused by the poisons generated by micro-organisms, and not by the micro-organisms themselves. The production of microbicidal agents does not, therefore, in connection with the question, require consideration, but it may be pointed out that there is evidence of the production, both by toxins and by micro-organisms, of substances specially unfavourable to the vitality of the micro-organisms themselves.

The production of antitoxin in the body, whether following the introduction of virulent microbes or of toxins entirely free from microbes, has generally been explained by a reaction occurring in the tissues of the body, whereby either a proliferation of leucocytes and the production by them of the protecting substances is excited, or the normal cells of the body are stimulated in such a way that they secrete the protective substance.

The subject, however, is surrounded by difficulties, not a few of which have arisen from the attempt to obtain an explanation without separating the influence of the microbe from that of the toxin, with the result that biological conceptions have perhaps been introduced unnecessarily into the consideration and discussion of the subject. As a contribution to the solution of the problem I would advance the following facts: Although searched for, no proteolytic or fermentative action has been discovered in the case of any toxin or venom; By subjection to certain external influences, such as elevation of temperature, and the influence of electric currents and of certain chemical reagents, toxins and venoms may have their poisonous action destroyed, while the immunising or protective action is retained; and, Toxins have been found actually to contain protective or remedial substances along with their toxic ingredients, as shown, for instance, by Hunter in the case of the toxin of tubercle.

These considerations suggest that the protecting substance originates directly from the toxin, or is indeed an ingredient in its complex composition. The suggestion is supported by experiments which show that the degree of protection artificially produced in an animal—for it is, perhaps, not unnecessary to state that protection and immunisation are only relative and not absolute—is proportional to the total quantity of toxin or venom introduced, rather than to the amount of reaction produced in the animal by any of the several administrations. The remarkable facts which have been described in connection with the stomach administration of venom, obtained also by Ehrlich and Kobert with the somewhat similar bodies abrin and ricin, and by Valli with the virus of hydrophobia, seem likewise to receive their most satisfactory solution on this supposition. A dose of venom, several hundred times greater than is requisite to produce death by subcutaneous injection, fails when introduced into the stomach to produce any poisonous sympton whatever, but still so protects the animal that considerably more than the minimum-lethal dose may now be subcutaneously administered without producing death.

It is difficult to account for these facts otherwise than by assuming that the venom while in the alimentary canal had been subjected to a process of analysis, as the result

of which its toxic constituents had been separated from those that are antitoxic or protective; and while the former had either been destroyed or had failed to be absorbed, the latter had passed into the blood in sufficient quantity to protect the animal against otherwise lethal administration of venom.

There are, undoubtedly, many facts still required before a convincing explanation can be formulated of the origin of the antitoxic substances that appear in the body after the reception of pathogenic or other similar toxins; but the facts already ascertained appear to indicate that the antitoxic or immunising substances originate not from vital reactions upon constituents of the body but from the toxins themselves, being produced by chemical changes in them, or being actually among their normal ingredients.

The question is not only of scientific interest but it has also a practical bearing. The manufacture of the immunising substance is attended with much difficulty. A satisfactory antitoxin can rarely be obtained until a tedious process, extending over several months, has been followed. Antipneumococcus serum requires as long a time as six months, the immunising serum of yellow fever from twelve to eighteen months, and the nearest approximation yet obtained to a satisfactory protecting serum of tubercle the almost impractical period of several years. Were it recognised that the antitoxin originates directly from the toxin, the preparation of it would be freed from existing difficulties and mysteries, and, after some necessary chemical research, it could be produced in the laboratory and thus brought into closer relationship with ordinary medicinal substances.

Any generalisation in medicine, while it may serve the useful purpose of emphasising advancement in knowledge, must remain barren of practical result unless it also supplies general principles as well as specific indications for treatment. It may with some confidence be stated that the doctrine of the toxic origin of disease does not fail in these respects.

In the case of ordinary poisons it has been well established that recovery is largely promoted by hastening the removal of the poison from the body, especially by means which it is the province of pharmacology to indicate; and the eliminative treatment which has long been followed in many diseases thus finds in their now definitely established toxic origin a sufficient explanation and justification. Clinical and experimental evidence, not restricted to ordinary poisons, but gained also from the study of the effects of toxins and venoms, has taught us that treatment should also include the adoption of measures for increasing the resistance afforded by the body to toxic and morbific processes. If a dose of venom below the minimum lethal be administered to an animal, and, after all obvious symptoms of poisoning have disappeared, this dose be followed by a second, also considerably below the minimum lethal, the animal may die, although each dose was in itself insufficiently large to cause death. If an animal has been inoculated by a non-lethal quantity of the virus of a recognised disease such as anthrax, and, after recovery has apparently been established, if a non-lethal dose of the virus of another disease be inoculated, death will follow the inoculation of the second dose, although that dose is quite insufficient of itself to produce death in an animal which has not previously been thus treated. In both cases the power of resistance has been so weakened by the first and apparently recovered-from administration that a quantity of virus in itself insufficient to cause death now succeeds in doing so. From such examples the explanation is found of the widely prevalent employment of means to increase the strength or resistance of a patient, of the value of tonics and foods and of fresh air and light, not only in promoting recovery from illness, but also in actually preventing a fatal termination. Expressed in another form, they constitute means for slightly increasing for any given degree of disease the minimum quantity of the disease-producing influence or substance required to produce that degree of disease.

These as well as other methods of treatment that might be referred to do not, however, directly affect the true cause of the malady. Hitherto, this cause could be counteracted or opposed only in the instances of the well-known poisons which are dealt with by toxicology, and of a very few diseases such as ague and syphilis, in which the cause was surmised, without being proved, to be a poisonous substance; and in substances fitted to antagonise these poisons by chemical combination, or, though only to a limited extent, to counteract their effects by physiological processes, therapeutics has possessed satisfactory resources. By the demonstration of the production of many diseases by toxins generated by micro-organisms, the opportunities for the application of these principles has been greatly extended. Diseases whose treatment had previously rested on an uncertain basis have now been brought into the range of rational therapeutics; and it has been shown that morbific processes which had already become so definitely established as to display serious symptoms can be entirely arrested, and, above all, that illnesses which would otherwise inevitably terminate in death may be so perfectly controlled that the fatal termination can be prevented and recovery ensured.

A dose considerably above the minimum lethal of the toxin of tetanus is administed to an animal. Several hours after the administration, when symptoms of tetanus had manifested themselves, the antitoxin of tetanus, derived from an animal which had been immunised against the virus, is injected under the skin, and in a short time afterwards the symptoms of the diseas disappear and the animal recovers.

A dose of cobra venom sufficient to cause death in two or three hours is administered to an animal; the venom illness is developed, and while it is quickly advancing to apparently an early death, a dose of antivenin—the blood serum of an animal highly immunised against this venom—is administered, and by-and-by the symptoms become mitigated, and in a few hours the animal, which otherwise would certainly have died, is restored to a perfectly normal condition.

By this antidotal treatment, further, not only is disease arrested and even death conquered, but the structural alterations in the muscle fibre and elsewhere that the tetanus toxin produces, and also the acute and rapid changes in the parenchyma of the kidney, characterising the poisonous action of serpents' venom, are altogether prevented from occuring.

How are these marvellous therapeutic or curative effects to be explained? The explanations that have been advanced are essentially the same as those applied to the production of immunity, and they have already been disposed of in the discussion of that subject. Specially bearing on the therapeutic aspect of the question are the further considerations that antitoxins are destitute of any distinct physiological action, and, founding on Declory's recent work on antivenin, antitetanin, and the antitoxin of diphtheria, they have even no influence on the processes of ultimate nutrition. Their curative action cannot, therefore, depend on physiological antagonism, and it is highly improbable that it has any biological basis whatever.

Referring again to experiments made with serpents' venom, when this venom in lethal quantity is mixed in a test tube with a small quantity of antivenin, the venom almost instantly loses its toxic power. Further, if the smallest quantity of antivenin required to produce this change after contact for a definite time with a lethal quantity of venom be determined, it will be found that if the time of contact is lessened this quantity of antivenin is no longer able to remove the toxicity of so large a quantity of venom. When, again, venom is injected

under the skin of an animal at the same time as, but in a different position from, the antivenin, the quantity of the latter required to prevent death is for the same dose of venom about twelve times larger than when the two substances had been mixed together before they were injected. Such distinctions are difficult of explanation otherwise than by supposing that a combination, chemical or mechanical, is effected between the antivenin and the venom, for they indicate that when the conditions are the more favourable for ensuring contact between the antitoxin and the toxin, the antidotal action is more powerful than when the conditions are less favourable for this contact.

This view is also supported by the fact that if the antivenin be administered after the venom, the dose of the former required to prevent death is enormously larger than when the two substances are simultaneously administered after they have been mixed together outside of the body. In the case of antivenin and venom the difference is as great as one to 1,200.

This experimental result, harmonising altogether with a physical as distinguished from a biological explanation of the antidotal action of antitoxins, emphasises the lesson, gradually receiving acceptance in practice, that for the effective treatment of an infectious disease the quantity of antitoxin must be a very large one, and at least 1,000 times greater than is indicated by the *in vito* experiments by which their antidotal power has usually been determined and standardised.

For this reason the antitoxic serums frequently in use at the present time must be regarded as too dilute solutions. It is indeed probable that the process of immunisation, even when carried to its utmost limits, is incapable of producing antitoxic serums sufficiently powerful, in doses which can be administered, to cure a patient suffering from the effects of a large lethal quantity of toxin. Chemistry, however, has as yet left almost untouched the investigation of antitoxic serums, and it may confidently be expected that, when more knowledge has been obtained of their chemical composition, this difficulty will be overcome by the separation of the curative from the worthless ingredients.

By such results as are exemplified in the experiments that I have described a new era has been originated in practical medicine. Considering how limited were the means—if, indeed, they previously had existed—of actually preventing death when the fatal disease conditions were already present, a special fascination attaches itself to the subject of the antidotal treatment of disease, the newly created serumtherapeutics. It has merely entered the first stages of its development, and has had to contend in its applications to human beings with the difficulties presented by the presence of undiscoverable amounts of disease toxins, diffused by living generators, which are present in the body in unknown quantities and in varying toxic potentialities. The results already obtained are, however, of much value. Diphtheria has had its case mortality reduced from 70 per cent. to 26 per cent., or, according to another estimation, from 40 per cent. to 8 per cent.; hydrophobia has been so far brought under therapeutic control, by means which have not as yet been developed to their full efficiency, that its mortality has shrunk at least from 16 to 1 per cent.; the prognosis of tetanus has been deprived of much of its gloomy forebodings; the cure of pneumonia, of tubercle, of erysipelas, and of septicæmia is on the eve of being realised; a complete demonstration has been obtained of the power of antivenins to prevent the toxic and lethal effects of venoms; and the experimental data are being surely accumulated for completing the greatest triumph of preventive medicine by the discovery of an antitoxic serum for the cure of smallpox.

DEATH FROM GLANDERS.

On Tuesday afternoon, August 9th, Mr. Walter Schroder, deputy to Mr. Braxton Hicks, Coroner for south-west London, at the Lambeth Coroner's Court, held an inquiry into the circumstances of the death of George Howard, 32, a carman, who lived at 74, Bendon Valley, Earlsfield, Wandsworth.

Matilda Howard, the widow, stated that her husband had been in the employ of Mr. Padbury, a cardboard manufacturer, of 51, Bendon Valley, about 17 years. The deceased had charge of one horse. He had not been himself for three years. He complained of a gnawing pain in the leg, and was an out-patient at St. Thomas's Hospital at Christmas and again in February. He said the pain was just below the knee. He also had a wound in his arm like a boil. It first came in a small lump, then it got larger and broke. No other wound appeared. He thought the pains were the result of a cold.

Dr. H. H. Scott, one of the house physicians of St. Thomas's Hospital, said deceased was admitted on the 5th July, when, as far as could be seen, he was only a "little out of sorts." He stated that he had felt ill for a long time, but could not give a definite idea of the way in which he felt ill. There was a suspicion he might have typhoid fever coming on, and consequently he was admitted. Witness and his colleagues at the Hospital had had the man under careful observation, but were not able to diagnose the case. They treated it as one of coming typhoid, but finding it was not that, altered treatment. The deceased wandered at times, and complained of pains just below the shin. Afterwards he complained of pain in his left arm. Special symptoms presented themselves about the end of last week, and they began to get the pains localised in a number of situations. Then they came to the conclusion it might be a case of glanders. He got worse, rapidly. The condition of the blood caused him to sink.

Dr. H. E. Russell, medical registrar at St. Thomas's Hospital, said he had made an examination of the body. Around the right eye he found a group of ulcers and on other parts of the upper extremities numerous pustules, the majority of which were just beneath the skin. Deceased also had a large number of abscesses some being intra-muscular. He had a slight enlargement of the brachial glands, and the mesenteric glands were a trifle enlarged. The brain was healthy. The lungs showed a large number of nodules, varying in size from that of a hemp seed to that of a pea. On section they were grey in colour, but on the surface they were pink and were surrounded by a zone of inflammation. Otherwise the lungs were healthy in every respect. The liver was healthy and the kidneys were healthy. The spleen was a little enlarged, but not more so than is commonly the case where people have had a good deal of fever. The stomach contained several ulcers. The immediate cause of death was blood poisoning. There is little doubt whatever the case was one of glanders, but it awaits a bacterial examination.

Mr. C. J. Humphrey (for the County Council): Did these sores on the face appear deep?—No they were shallow. Were there any other ulcers on the face?—Yes, several, eight or nine or ten. Were they in a condition which made it look as if they were about to coalesce?—Yes. What shape were they?—Irregular.

Hy. Chas. Liddag, manager to Mr. Padbury, stated that for about three years Mr. Padbury had only kept one horse, which had never had any illness so far as they knew, beyond a slight cold. Three years ago, Mr. Padbury kept two horses, one of which had to be slaughtered as it suffered from glanders. Deceased did not have charge of that horse, although he might have attended to it when another man was away. Since then he had not heard of any case of glanders with which

deceased could come into contact. The horse they now possessed had been examined by a veterinary surgeon, Mr. Cousens Garry, F.R.C.V.S., and he had given the certificate produced, to the effect that the animal was not at present suffering from glanders. A firm of horse slaughterers, Messrs. Harrison & Barber, carried on business about 100 yards from Mr. Padbury's premises. Deceased would not have occasion to go there so far as witness knew.

Mr. W. C. Milestone, manager to Messrs. Harrison & Barber, gave evidence to the effect that his firm's premises came under the supervision of the County Council. The bodies of horses slaughtered were reduced to a pulp by a process of high temperature steam, under the direction of Mr. C. J. Humphrey, F.R.C.V.S., inspector to the London County Council. They had never had a case of glanders.

Mr. Humphrey deposed that, by virtue of his office, all cases of glanders would come under his notice. He had never had any complaint to make against Messrs. Harrison & Barber as to the way in which they conducted their business. He could not say whether it was possible for the complaint to have been caught so far back as three years from the horse which had to be slaughtered, and to have hung in the deceased's system all the time till now.

Dr. Henry, divisional surgeon, did not think it possible but said an absolute opinion could not be expressed on the matter. From the description of the post-mortem examination he should say it was an undoubted case of glanders.

The jury found a verdict of natural causes.

On enquiry at St. Thomas's Hospital the following day a reporter ascertained that the bacterial examination had shown that it was a case of glanders.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS

The fourth international congress on Tuberculosis opened in Paris on Wednesday, July 27th, at the Faculty of Medicine. The large theatre was entirely filled by a crowd of medical men, among whom were a large number of foreigners. The presidential chair was occupied by M. Nocard, Professor at the Veterinary School at Alfort, supported by M. L. H. Petit (general secretary) and Professor Brouardel, Professor Bouchard, Professor Potain, Professor Lannelongue, Professor Grancher, Professor Cornil, and others. M. Nocard delivered an opening discourse in which he eulogised Villemin and Vermeuil, who were the original organisers of these congresses. He reiterated the assertion that contagion played a large part in the etiology of tuberculosis, giving it as his firm opinion that the complaint was one of those which were most easy to avoid, and that out of 150,000 persons who yearly fell victims to tuberculosis in France 125,000 might have been saved if they had been protected from contagion. Next, M. Petit, the secretary, gave an account of what had resulted from the application of the measures suggested by the congress of last year. The two first, which dealt with the question of providing spittoons in public elementary schools so as to train the children not to spit on the floor, have only just begun to be applied. The third measure, which declared that tuberculosis ought to be numbered among the infectious diseases, and that its notification ought to be obligatory, has not been acted upon. The fourth measure, which related to the compulsory disinfection of places where tuberculosis patients had died, is at present being carried out fairly completely, at least in Paris and the large towns. The last measure, which dealt with the question of receiving tuberculous patients in special hospitals, or of isolating them in general hospitals, has been acted upon in so far that at the Lariboisière Hospital, at the Laennec Hospital, and at the Boucicaut Hospital, wards have been set aside for the isolation of such patients. Six millions of francs (£240,000) have been reserved for the building of such wards in the hospitals of St. Antoine, Cochin, Broussais, Bichat, La Pitié, Tenon, and in a new hospital to be built on the right bank of the Seine. The congress then commenced the hearing of papers and reports. Professor Bang, of the Veterinary School of Copenhagen, read a most important paper on the struggle which was going on against animal tuberculosis by means of prophylactic measures. He referred briefly to various measures taken in Europe for the inspection of meat exposed for sale which had been taken from tuberculous animals, as well as the transmission of tuberculosis by milk. The most interesting statement he made was in reference to the regulations introduced this very year in Denmark, which absolutely forbid any dairy to sell separated (*écrémé*) milk without its being previously heated to a temperature of 85° C; aftered this it is quickly cooled, which prevents it having any peculiar taste. Professor Storch has discovered a test to show that the heating to 85° C. has been really carried out, for milk treated in this way preserves its colour when there are added to it a drop of a solution of peroxide of hydrogen and two drops of a 2 per cent. watery solution of paraphenylendiamine, whilst milk which has not been heated to 85° C. turns blue.—Various papers followed, notably one by M. Letulle upon the Present Provision for Tuberculous People in Hospitals in Paris; one by MM. Arloing and Courmont upon the Employment and the Clinical Value of the Agglutination Test; and one by M. A. J. Martin on the Increase in Applications for Disinfection after the Death of a Tuberculous Patient, which were sent in by the public, and which numbered 7000 for the first half of 1898.—*The Lancet.*

PARLIAMENTARY.

Rabies.

In the House of Commons, on Thursday, August 4th, in answer to Mr. Whitmore, (Chelsea),

Mr. Long (Liverpool, West Derby) said,—I am happy to say that the position in regard to rabies continues, only three cases having been reported in the nine weeks which have elapsed since my hon. friend's last question on this subject, as compared with 25 in the corresponding period of last year. During the 31 weeks of the present year we have had only 14 cases, as compared with 108 in the corresponding period of 1897 and 369 in that of 1896. (Cheers).

Mr. Coghill (Stoke-upon-Trent).—Will the right hon. gentleman be prepared to allow dog owners to make a declaration before a magistrate if they have a conscientious objection to muzzling? (Laughter).

The question was not answered.

Woolsorters' Disease.

Mr. Flannery (Yorkshire, Shipley) asked the Home Secretary whether his attention had been called to recent deaths from woolsorters' disease in Bradford, occurring from alleged infection in the carding room as distinguished from the sorting room; and whether he could see his way to hold an enquiry as to whether or not the rules should be extended to carding rooms.

Sir M. W. Ridley (Lancashire, Blackpool).—My attention has been called to this matter. The reports I have received show that in the most recent case, though the man was employed in the card room, it was not from his own work that the infection reached him. The existing rules do not apply to the process of carding, and,

as they deal mainly with dust as the medium of infection, could not be applied *en bloc*. The matter is a serious one, and I propose to institute enquiries.

The Prevention of Woolsorters' Disease.

The recent death and inquest at Bradford from this too frequently recurring but entirely preventable disease have caused some discussion in the Bradford and Leeds papers. The practical difficulties in dealing with the alpaca wools, in which the anthrax bacillus is chiefly found, are considerable. Naturally expensive fans and washings, steam sterilisation of dust, and other suggested means of preventing infection, are resorted to with an unwillingness directly proportional to their costliness, and to the smallness of the risks attendant on their neglect. It has been stated that the incidence of woolsorters' disease being as much an accident of employment as say a fall down a lift, the Compensation Act will apply; and that the dread of having to pay some hundreds of pounds to the family of a victim will deter employers from neglecting the preventive measures which science has prescribed. Indeed, the Bradford Trades Council suggests that if the disease does not at present come under the Act, as Mr. Chamberlain, we believe, contends, it should be made to do so by the Legislature. It must, however, be remembered that a merely pecuniary penalty can be insured against. If the means to be adopted are expensive, and have to be applied to every factory, while the risk is only occasional, the premium necessary to cover the latter may be so small that it might be preferred to the erection of the necessary apparatus. Were the penalty for neglect, however, a fortnight in gaol without the option of a fine, the moral sense of some manufacturers might receive a wholesome stimulation.—*Brit. Med. Journal.*

The Prevention of Anthrax in Italy.

During the first few years after the foundation of the Anticharbon Institute at Turin the number of tubes of anticharbon vaccine sent out was only 4,000 to 5,000 a year. Professor Pagliani, then Director of the Public Health, decided that the Laboratory, which had been founded at Turin by Perroncito, should be removed to Rome. Immediately after this the production of vaccine greatly increased, as it was found possible to reduce its price. In the disorganisation which overtook the department of Public Health two years ago this laboratory came to grief; fortunately, however, its work was taken up by the Sero-therapeutic Intitute of Milan, from which the vaccine continues to be sent out under the supervision of Professor Airoldi, a former assistant of Perroncito. Now the yearly output of anticharbon vaccine amounts to 165,000 tubes. From May 1st, 1897, to April 30th, 1898, sufficient vaccine was sent out to inoculate 33,734 bovine and 98,792 ovine animals. Anthrax has greatly diminished in Italy in recent years; but, in spite of the large amount of anticharbon serum supplied, a good many cases still occur, both among animals and among men, in different parts of the country.

Mr. Power's Bereavement.

We are sure that we give utterance to the general feeling of the profession in expressing the deepest sympathy with Mr. Henry Power in the terrible bereavement which he has suffered by the loss, all the more shocking from its suddenness, of his daughter and granddaughter, Miss Lucy Power and Miss Isabel Cooper. The ladies were walking on the East Pier at Whitby on Saturday July 30, when a huge wave broke over them and washed them into the sea, where they were drowned in the presence of Mr. Power. He made a courageous attempt to save them, but was himself knocked down by another wave, and would have been carried out to sea but for the assistance of a bystander. Miss Power was an artist of great promise, and a portrait of her father painted by her attracted much attention in last year's Academy.—*The British Medical Journal.*

ARMY VETERINARY DEPARTMENT.

From *The London Gazette*,

WAR OFFICE, Aug. 9.

Vet.-Lieut.-Col. J. Kettle is placed on retired pay.

OBITUARY.

HENRY DURANT GIBBINGS, M.R.C.V.S., Southwark.
Graduated, Lond., April, 1875.

With great regret we have to note the death of Henry Durant Gibbings, M.R.C.V.S., who graduated April 1st, 1875. He had been the veterinary surgeon to Messrs. Barclay, Perkins & Co., Southwark, for the past 23 years, and died at Herne Bay on July 15th, 1898.

Vet.-Capt. A. J. HASLAM, B.A., M.D., C.M., Edin., F.R.C.V.S.
Graduated, New, Edin., April, 1884.

Killed in East Africa, in his 34th year, Captain A. J. Haslam, B.A., M.D., of the Army Veterinary Department, late of Cheetwood, Manchester. Deeply regretted.

CORRESPONDENCE

HAVE VETERINARY SURGEONS THE POWER TO DETAIN PATIENTS IN THEIR INFIRMARIES UNTIL THEIR CLAIMS FOR TREATMENT HAVE BEEN SATISFIED?

Sir,

Can the learned Editor answer the above question? Both D. Ross Stewart and Oliphant in their works on the "Law of Horses" answer in the affirmative; yet Mr. Curtis Bennett, magistrate in the case of Clarke *v.* Arkcoll informed the defendant that "he had no lien on the dog" for his keep and treatment during illness. As this question affects us as professional men I think it worth while to call attention to it.

HENRY GRAY.

Aug. 7th, 1898.

[Unless under a special contract veterinary surgeons have no lien upon a live animal.—ED].

Re "STREET FILTH."

Sir,

What a d—d fool "Listerian" must be.

Yours faithfully,

FRANK W. DOWELL.

[This exactly expresses our own opinion.—ED.]

Re MILK FEVER.

Dear Editor,

What a funny lot there are at Barnstaple.—Yours,

W. B. Junr.

[They are not the only ones.—ED.]

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—Capts. S. M. Smith, H. Hayes, Lt. C. Rose, Messrs. F. W. Dowell, F. H. Gibbings, J. Russell, H. Thompson, W. F. Barrett, A. Watson, A. S. Brooksbank, J. D. Pottie, W. B. Junr. *The Scottish Farmer, Halifax Evening Courier, The Penrith Observer.*